Faults:

0X0000 - 05/18/2017 08:14:09.382 - None Found

0X0000 - 05/18/2017 08:17:26.454 - None Found

0X0000 - 05/18/2017 08:23:04.702 - None Found

0X0000 - 05/18/2017 08:25:54.761 - None Found

0X0000 - 05/18/2017 08:28:11.159 - None Found

0X0000 - 05/18/2017 08:34:31.237 - None Found

0X0000 - 05/18/2017 08:35:54.268 - None Found

0X0000 - 05/18/2017 08:36:43.464 - None Found

0X0000 - 05/18/2017 08:39:13.259 - None Found

0X0000 - 05/18/2017 08:41:23.259 - None Found

0X0000 - 05/18/2017 08:43:36.986 - None Found

0X0000 - 05/18/2017 08:45:13.401 - None Found

0X0000 - 05/18/2017 08:54:32.009 - None Found

0X0000 - 05/18/2017 09:14:26.472 - None Found

0X0000 - 05/18/2017 09:51:38.686 - None Found

0X0000 - 05/18/2017 09:55:45.288 - None Found

0X0000 - 05/18/2017 09:58:02.426 - None Found

0X0000 - 05/18/2017 10:01:17.387 - None Found

0X0000 - 05/18/2017 10:04:13.355 - None Found

0X0000 - 05/18/2017 10:06:36.295 - None Found

0X0000 - 05/18/2017 10:09:36.398 - None Found

Warnings:

0X0000 - 05/18/2017 08:14:09.382 - None Found

0X0000 - 05/18/2017 08:17:26.454 - None Found

0X0000 - 05/18/2017 08:23:04.702 - None Found

0X0000 - 05/18/2017 08:25:54.762 - None Found

0X0000 - 05/18/2017 08:28:11.159 - None Found

0X0000 - 05/18/2017 08:34:31.238 - None Found

0X0000 - 05/18/2017 08:35:54.268 - None Found

0X0000 - 05/18/2017 08:36:43.464 - None Found

0X0000 - 05/18/2017 08:39:13.259 - None Found

0X0000 - 05/18/2017 08:41:23.260 - None Found

0X0000 - 05/18/2017 08:43:36.986 - None Found

0X0000 - 05/18/2017 08:45:13.401 - None Found

0X0000 - 05/18/2017 08:54:32.009 - None Found

0X0000 - 05/18/2017 09:14:26.472 - None Found

0X0000 - 05/18/2017 09:51:38.686 - None Found

0X0000 - 05/18/2017 09:55:45.288 - None Found

0X0000 - 05/18/2017 09:58:02.426 - None Found

0X0000 - 05/18/2017 10:01:17.387 - None Found

0X0000 - 05/18/2017 10:04:13.355 - None Found

0X0000 - 05/18/2017 10:06:36.295 - None Found

0X0000 - 05/18/2017 10:09:36.398 - None Found

Post Processor Limits:

Engine Speed Limit (rpm/s),1000.000000

Vehicle Speed Limit (mph/s),21.000000

Fuel Rate Limit (gal/s),0.050000

Reference Torque Limit (lb-ft),10000.000000

Fuel Specific Dropout Limit(% C),0.500000

Brake Specific Dropout Limit (bhp-h),0.005000

FID Range Change Ignore,4

Post Processor Limit Events:

Engine Speed Limit Count,3

Vehicle Speed Limit Count,4

GPS Speed Limit Count,0

Fuel Rate Limit Count,0

Reference Torque Limit Count,0

Fuel Specific Dropout Limit Count,77

Brake Specific Dropout Limit Count,1166

FID Range Change Ignore Count,0

External Input Configuration:

,ID,Description,Units,Polynomial Order,x^0,x^1,x^2,x^3,x^4,x^5,x^6,x^7,x^8,x^9

EAI1,,,,0,0.0000000

EAI2,,,,0,0.0000000

EAI3,,,,0,0.0000000

Audit/Span/Zero Information:

Zero

InfoVer,1

Date,5/18/2017

Time,08:14:08

Purge Delay,30

Gas Path,Zero

Gas,Previous,Current,Difference

CO(ppm),41.875000,-10.000000,51.875000

CO2(%),0.010000,-0.010000,0.020000

NO(ppm),7.600000,-0.133333,7.733333

NO2(ppm),2.700000,0.120000,2.580000

THC(ppmC),-21.462500,-0.273333,-21.189167

Zero

InfoVer,1

Date,5/18/2017

Time,08:17:25

Purge Delay,30

Gas Path,Zero

Gas,Previous,Current,Difference

CO(ppm),-10.000000,0.000000,-10.000000

CO2(%),-0.010000,0.000000,-0.010000

NO(ppm),-0.143750,-0.273333,0.129583

NO2(ppm),0.281250,-0.200000,0.481250

THC(ppmC),1.062500,-1.000000,2.062500

Span

InfoVer,1

Date,5/18/2017

Time,08:23:04

Purge Delay,30

Gas Path,Span

,CO,CO2,O2,HC,NO,NO2,CH4,THC,LoCO

Bottle Values,1310.000,13.000000,20.900,1997.000,1771.000,506.900,0.000,0.000,0.000

Gas,Previous,Current,Difference

CO(ppm),1240.000000,1310.000000,-70.000000

CO2(%),13.456875,13.000000,0.456875

NO(ppm),1738.487500,1770.413333,-31.925833

Span

InfoVer,1

Date,5/18/2017

Time,08:25:54

Purge Delay,30

Gas Path,Span

,CO,CO2,O2,HC,NO,NO2,CH4,THC,LoCO

Bottle Values,1310.000,13.000000,20.900,1997.000,1771.000,256.300,0.000,0.000,0.000

Gas,Previous,Current,Difference

NO2(ppm),256.837500,256.480000,0.357500

Span

InfoVer,1

Date,5/18/2017

Time,08:28:10

Purge Delay,30

Gas Path,Span

,CO,CO2,O2,HC,NO,NO2,CH4,THC,LoCO

Bottle Values,1310.000,13.000000,20.900,1997.000,1771.000,256.300,0.000,802.333,0.000

Gas,Previous,Current,Difference

THC(ppmC),782.081250,801.724444,-19.643194

Audit

Date,5/18/2017

Time,08:34:30

Audit Duration,30

Idle Duration,15

Audit Path,Span

Idle Path,Ambient Air

Gas,Bottle,Tol,%Tol

CO (ppm),303.000000,50.000000,3.000000

CO2 (%),5.110000,0.200000,3.000000

O2 (%),20.900000,0.500000,3.000000

HC (ppmC3),0.000000,8.000000,3.000000

NO (ppm),294.700000,15.000000,3.000000

NO2 (ppm),68.000000,12.000000,3.000000

CH4 (ppm),0.000000,0.000000,0.000000

THC (ppmC3),246.700000,27.000000,3.000000

Gas,Bottle,Mean Value,Std Dev,Result

CO(ppm),303.000000,320.666667,2.581989,Passed

CO2(%),5.110000,4.960000,0.000000,Passed

O2(%),20.900000,10.000000,0.000000,Not Selected

HC(ppmC3),0.000000,500.000000,0.000000,Not Selected

NO(ppm),294.700000,294.320000,0.256905,Passed

NO2(ppm),68.000000,100.000000,0.000000,Not Selected

CH4(ppm),0.000000,0.000000,0.000000,Not Selected

THC(ppmC),246.700000,0.000000,0.000000,Not Selected

Audit

Date,5/18/2017

Time,08:35:53

Audit Duration,30

Idle Duration,15

Audit Path,Span

Idle Path,Ambient Air

Gas,Bottle,Tol,%Tol

CO (ppm),303.000000,50.000000,3.000000

CO2 (%),5.110000,0.200000,3.000000

O2 (%),20.900000,0.500000,3.000000

HC (ppmC3),0.000000,8.000000,3.000000

NO (ppm),294.700000,15.000000,3.000000

NO2 (ppm),68.000000,12.000000,3.000000

CH4 (ppm),0.000000,0.000000,0.000000

THC (ppmC3),246.700000,27.000000,3.000000

Gas,Bottle,Mean Value,Std Dev,Result

CO(ppm),303.000000,301.333333,72.295689,Passed

CO2(%),5.110000,4.635333,1.257429,Failed

O2(%),20.900000,10.000000,0.000000,Not Selected

HC(ppmC3),0.000000,500.000000,0.000000,Not Selected

NO(ppm),294.700000,274.666667,76.261183,Failed

NO2(ppm),68.000000,100.000000,0.000000,Not Selected

CH4(ppm),0.000000,0.000000,0.000000,Not Selected

THC(ppmC),246.700000,0.000000,0.000000,Not Selected

Audit

Date,5/18/2017

Time,08:36:42

Audit Duration,30

Idle Duration,15

Audit Path,Span

Idle Path,Ambient Air

Gas,Bottle,Tol,%Tol

CO (ppm),303.000000,50.000000,3.000000

CO2 (%),5.110000,0.200000,3.000000

O2 (%),20.900000,0.500000,3.000000

HC (ppmC3),0.000000,8.000000,3.000000

NO (ppm),294.700000,15.000000,3.000000

NO2 (ppm),68.000000,12.000000,3.000000

CH4 (ppm),0.000000,0.000000,0.000000

THC (ppmC3),246.700000,27.000000,3.000000

Gas,Bottle,Mean Value,Std Dev,Result
CO(ppm),303.000000,330.000000,0.000000,Passed
CO2(%),5.110000,4.950000,NaN,Passed
O2(%),20.900000,10.000000,0.000000,Not Selected
HC(ppmC3),0.000000,500.000000,0.000000,Not Selected
NO(ppm),294.700000,293.660000,0.163881,Passed
NO2(ppm),68.000000,100.000000,0.000000,Not Selected
CH4(ppm),0.000000,0.000000,0.000000,Not Selected
THC(ppmC),246.700000,0.000000,0.000000,Not Selected

Audit
Date,5/18/2017
Time,08:39:12
Audit Duration,30
Idle Duration,15
Audit Path,Span
Idle Path,Ambient Air
Gas,Bottle,Tol,%Tol
CO (ppm),303.000000,50.000000,3.000000
CO2 (%),5.110000,0.200000,3.000000
O2 (%),20.900000,0.500000,3.000000
HC (ppmC3),0.000000,8.000000,3.000000
NO (ppm),294.700000,15.000000,3.000000
NO2 (ppm),68.000000,12.000000,3.000000
CH4 (ppm),0.000000,0.000000,0.000000
THC (ppmC3),246.700000,27.000000,3.000000

Gas,Bottle,Mean Value,Std Dev,Result
CO(ppm),303.000000,50.000000,0.000000,Not Selected
CO2(%),5.110000,0.090000,NaN,Not Selected
O2(%),20.900000,10.000000,0.000000,Not Selected
HC(ppmC3),0.000000,500.000000,0.000000,Not Selected
NO(ppm),294.700000,-1.100000,0.000000,Not Selected
NO2(ppm),68.000000,60.106667,0.103280,Passed
CH4(ppm),0.000000,0.000000,0.000000,Not Selected
THC(ppmC),246.700000,0.000000,0.000000,Not Selected

Audit
Date,5/18/2017
Time,08:41:22

```
Audit Duration,30
Idle Duration,15
Audit Path,Span
Idle Path,Ambient Air
Gas,Bottle,Tol,%Tol
CO (ppm),303.000000,50.000000,3.000000
CO2 (%),5.110000,0.200000,3.000000
O2 (%),20.900000,0.500000,3.000000
HC (ppmC3),0.000000,8.000000,3.000000
NO (ppm),294.700000,15.000000,3.000000
NO2 (ppm),68.000000,12.000000,3.000000
CH4 (ppm),0.000000,0.000000,0.000000
THC (ppmC3),246.700000,27.000000,3.000000

Gas,Bottle,Mean Value,Std Dev,Result
CO(ppm),303.000000,50.000000,0.000000,Not Selected
CO2(%),5.110000,0.090000,NaN,Not Selected
O2(%),20.900000,10.000000,0.000000,Not Selected
HC(ppmC3),0.000000,500.000000,0.000000,Not Selected
NO(ppm),294.700000,-1.100000,0.000000,Not Selected
NO2(ppm),68.000000,0.000000,0.000000,Not Selected
CH4(ppm),0.000000,0.000000,0.000000,Not Selected
THC(ppmC),246.700000,245.951111,0.859205,Passed

Zero
InfoVer,1
Date,5/18/2017
Time,08:43:36
Purge Delay,30
Gas Path,Zero

Gas,Previous,Current,Difference
CO(ppm),20.000000,0.000000,20.000000
CO2(%),0.010000,-0.004667,0.014667

Zero
InfoVer,1
Date,5/18/2017
Time,09:51:38
Purge Delay,30
Gas Path,Zero
```

Gas,Previous,Current,Difference

CO(ppm),45.000000,-8.666667,53.666667

CO2(%),0.002500,0.000000,0.002500

NO(ppm),-0.868750,-0.160000,-0.708750

NO2(ppm),0.500000,0.000000,0.500000

THC(ppmC),-2.250000,-1.000000,-1.250000

Span

InfoVer,1

Date,5/18/2017

Time,09:55:44

Purge Delay,30

Gas Path,Span

,CO,CO2,O2,HC,NO,NO2,CH4,THC,LoCO

Bottle Values,1310.000,13.000000,20.900,1997.000,1771.000,256.300,0.000,802.333,0.000

Gas,Previous,Current,Difference

CO(ppm),1295.625000,1310.000000,-14.375000

CO2(%),12.990625,13.002667,-0.012042

NO(ppm),1767.781250,1770.020000,-2.238750

Span

InfoVer,1

Date,5/18/2017

Time,09:58:01

Purge Delay,30

Gas Path,Span

,CO,CO2,O2,HC,NO,NO2,CH4,THC,LoCO

Bottle Values,1310.000,13.000000,20.900,1997.000,1771.000,256.300,0.000,802.333,0.000

Gas,Previous,Current,Difference

NO2(ppm),255.368750,256.013333,-0.644583

Span

InfoVer,1

Date,5/18/2017

Time,10:01:16

Purge Delay,30

Gas Path,Span

,CO,CO2,O2,HC,NO,NO2,CH4,THC,LoCO

Bottle Values,1310.000,13.000000,20.900,1997.000,1771.000,256.300,0.000,802.333,0.000

Gas,Previous,Current,Difference

THC(ppmC),787.258333,801.308889,-14.050556

Audit

Date,5/18/2017

Time,10:04:12

Audit Duration,30

Idle Duration,15

Audit Path,Span

Idle Path,Ambient Air

Gas,Bottle,Tol,%Tol

CO (ppm),303.000000,50.000000,3.000000

CO2 (%),5.110000,0.200000,3.000000

O2 (%),20.900000,0.500000,3.000000

HC (ppmC3),0.000000,8.000000,3.000000

NO (ppm),294.700000,15.000000,3.000000

NO2 (ppm),68.000000,12.000000,3.000000

CH4 (ppm),0.000000,0.000000,0.000000

THC (ppmC3),246.700000,27.000000,3.000000

Gas,Bottle,Mean Value,Std Dev,Result

CO(ppm),303.000000,320.000000,0.000000,Passed

CO2(%),5.110000,4.960000,0.000000,Passed

O2(%),20.900000,10.000000,0.000000,Not Selected

HC(ppmC3),0.000000,500.000000,0.000000,Not Selected

NO(ppm),294.700000,294.186667,0.375817,Passed

NO2(ppm),68.000000,100.000000,0.000000,Not Selected

CH4(ppm),0.000000,0.000000,0.000000,Not Selected

THC(ppmC),246.700000,0.000000,0.000000,Not Selected

Audit

Date,5/18/2017

Time,10:06:35

Audit Duration,30

Idle Duration,15

Audit Path,Span

Idle Path,Ambient Air

Gas,Bottle,Tol,%Tol

CO (ppm),303.000000,50.000000,3.000000

CO2 (%),5.110000,0.200000,3.000000

O2 (%),20.900000,0.500000,3.000000

HC (ppmC3),0.000000,8.000000,3.000000

NO (ppm),294.700000,15.000000,3.000000

NO2 (ppm),68.000000,12.000000,3.000000

CH4 (ppm),0.000000,0.000000,0.000000

THC (ppmC3),246.700000,27.000000,3.000000

Gas,Bottle,Mean Value,Std Dev,Result

CO(ppm),303.000000,40.000000,0.000000,Not Selected

CO2(%),5.110000,0.100000,0.000000,Not Selected

O2(%),20.900000,10.000000,0.000000,Not Selected

HC(ppmC3),0.000000,500.000000,0.000000,Not Selected

NO(ppm),294.700000,-0.700000,0.000000,Not Selected

NO2(ppm),68.000000,60.826667,0.088372,Passed

CH4(ppm),0.000000,0.000000,0.000000,Not Selected

THC(ppmC),246.700000,0.000000,0.000000,Not Selected

Audit

Date,5/18/2017

Time,10:09:35

Audit Duration,30

Idle Duration,15

Audit Path,Span

Idle Path,Ambient Air

Gas,Bottle,Tol,%Tol

CO (ppm),303.000000,50.000000,3.000000

CO2 (%),5.110000,0.200000,3.000000

O2 (%),20.900000,0.500000,3.000000

HC (ppmC3),0.000000,8.000000,3.000000

NO (ppm),294.700000,15.000000,3.000000

NO2 (ppm),68.000000,12.000000,3.000000

CH4 (ppm),0.000000,0.000000,0.000000

THC (ppmC3),246.700000,27.000000,3.000000

Gas,Bottle,Mean Value,Std Dev,Result

CO(ppm),303.000000,40.000000,0.000000,Not Selected

CO2(%),5.110000,0.100000,0.000000,Not Selected

O2(%),20.900000,10.000000,0.000000,Not Selected

HC(ppmC3),0.000000,500.000000,0.000000,Not Selected

NO(ppm),294.700000,-0.700000,0.000000,Not Selected

NO2(ppm),68.000000,0.000000,0.000000,Not Selected

CH4(ppm),0.000000,0.000000,0.000000,Not Selected

THC(ppmC),246.700000,247.773333,0.829630,Passed

Test Information:

SEMTECH_DATA_FILE,05/18/2017,08:12:48.235,[RELEASE_VER=2.018 BUILD=184 BDATE=03/03/2016 IP=10.10.1.55]

warm start tests 11/01/2016 highway, windy

[TIME_ALIGN_OPTIMIZE]